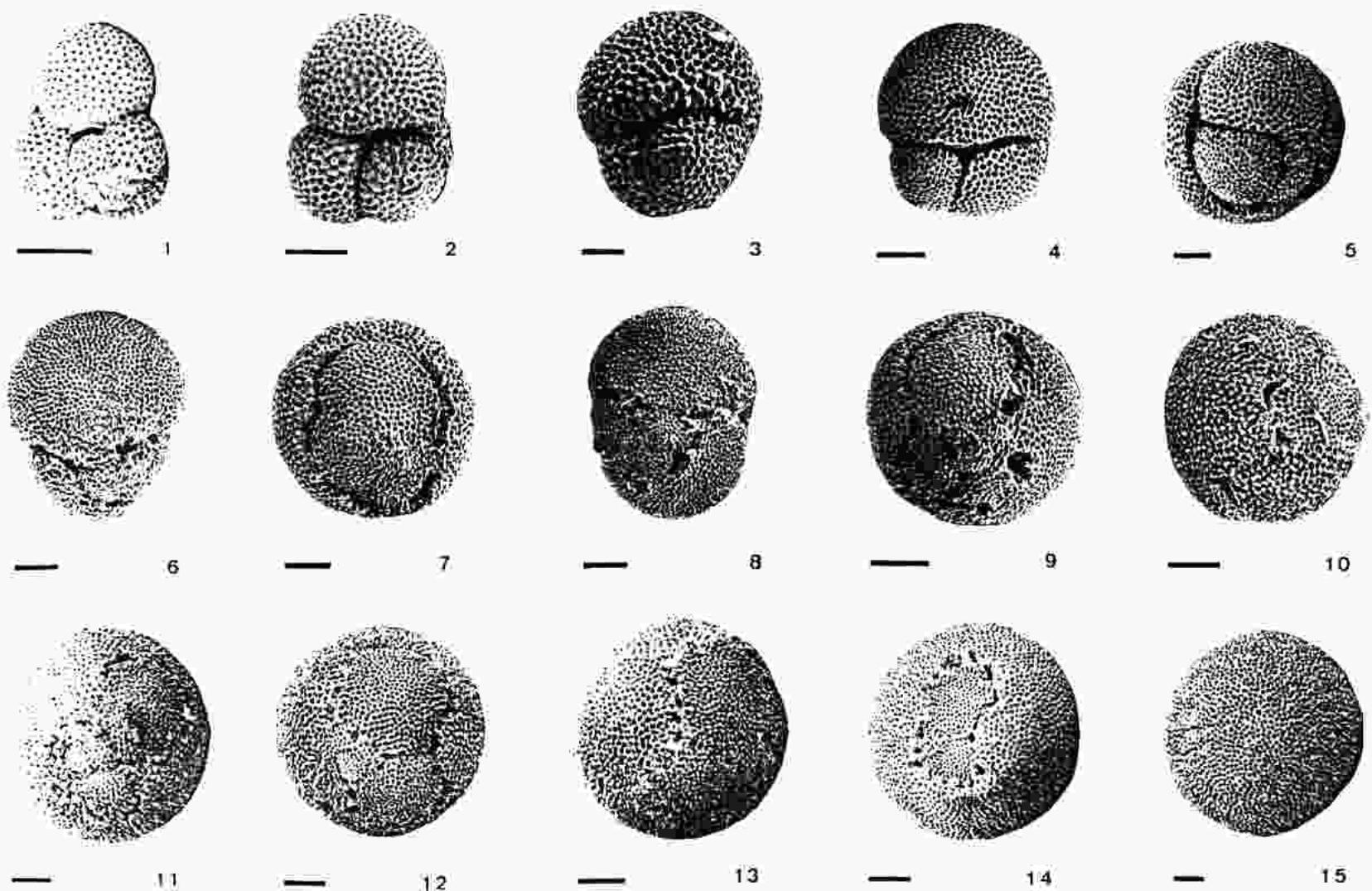


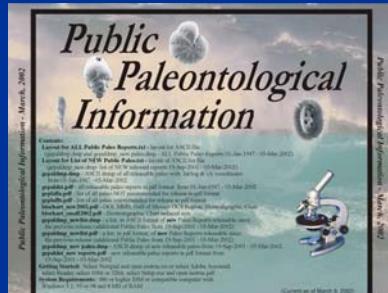


Biostratigraphy in the Gulf of Mexico - an historical MMS perspective



As of March 2002:

- *Number of paleontological reports:* 24,006
- *Number of data entries:* 138,809
- *Oldest paleontological report in the MMS paleo database was written in 1947.*
- *MMS paleo database contains paleontological reports from 1947 to the present.*



- *Gulf of Mexico OCS paleontological summary reports received from industry initially were simple, containing 3 to 5 data entries per report (pre-1980s).*
- *Over the last 20 years, paleontological summary reports entered into the paleontological database have increased in complexity, frequently containing over 150 data entries per report (current average data entries per report = 25).*

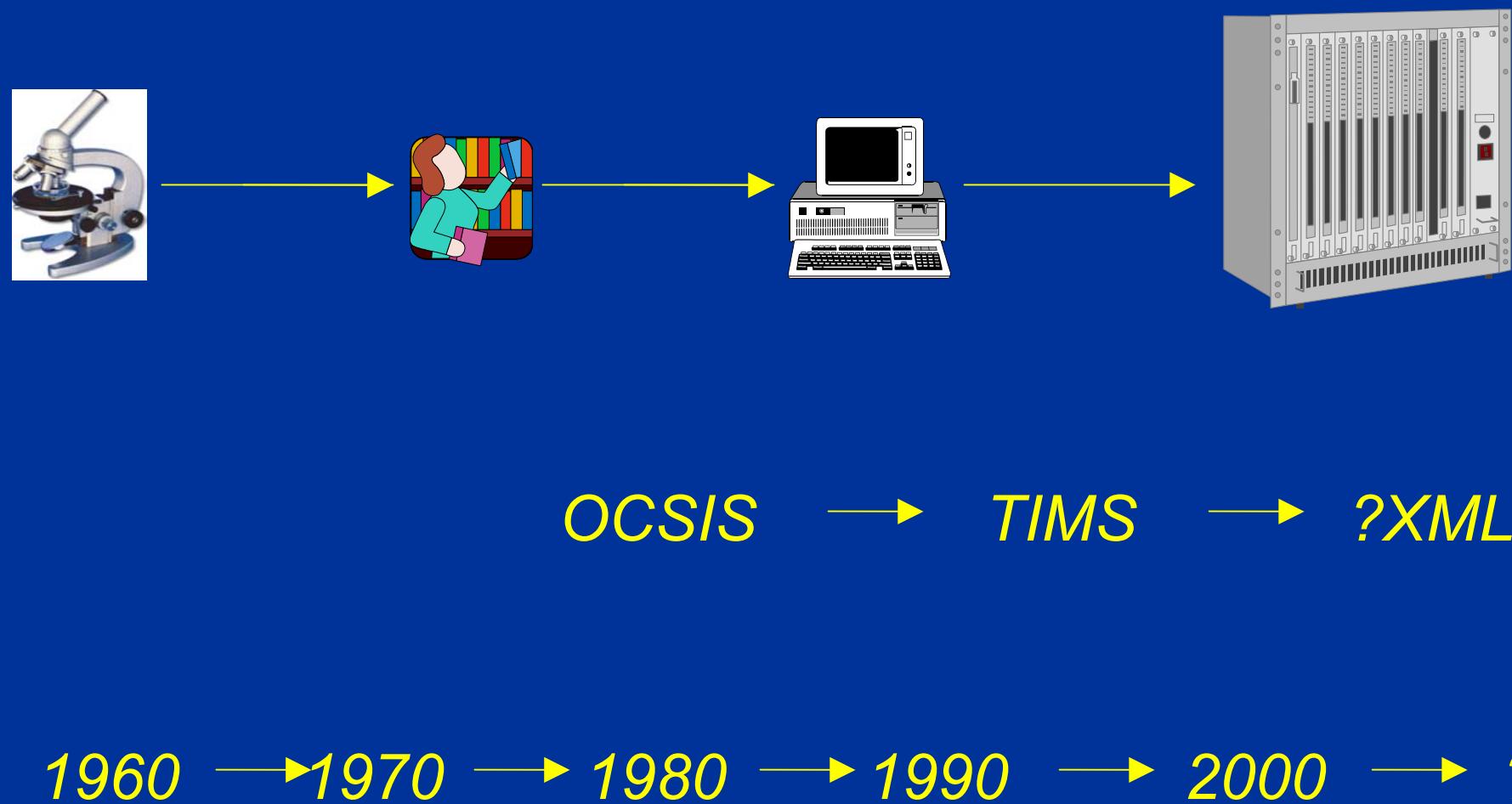


- From 1947 until 1975, paleontological reports consisted mainly of biostratigraphic data and information, with only about 50% indicating paleodepositional environment or paleobathymetry.
- Since the mid-1980s, most foraminiferal paleontological reports contain paleobathymetric data, highly significant in delineating the paleodepositional environment.

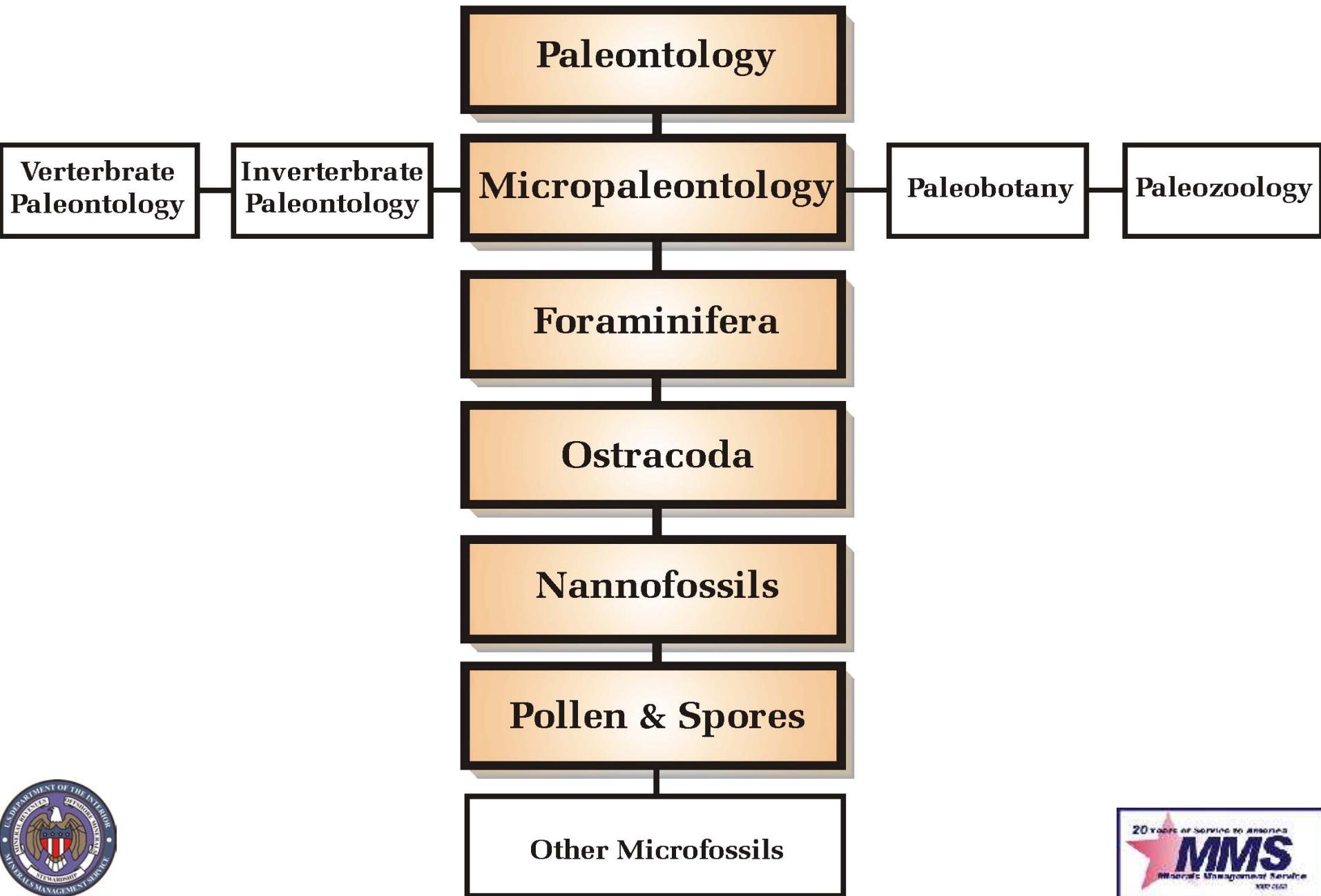




Changes in paleontologic report management and storage



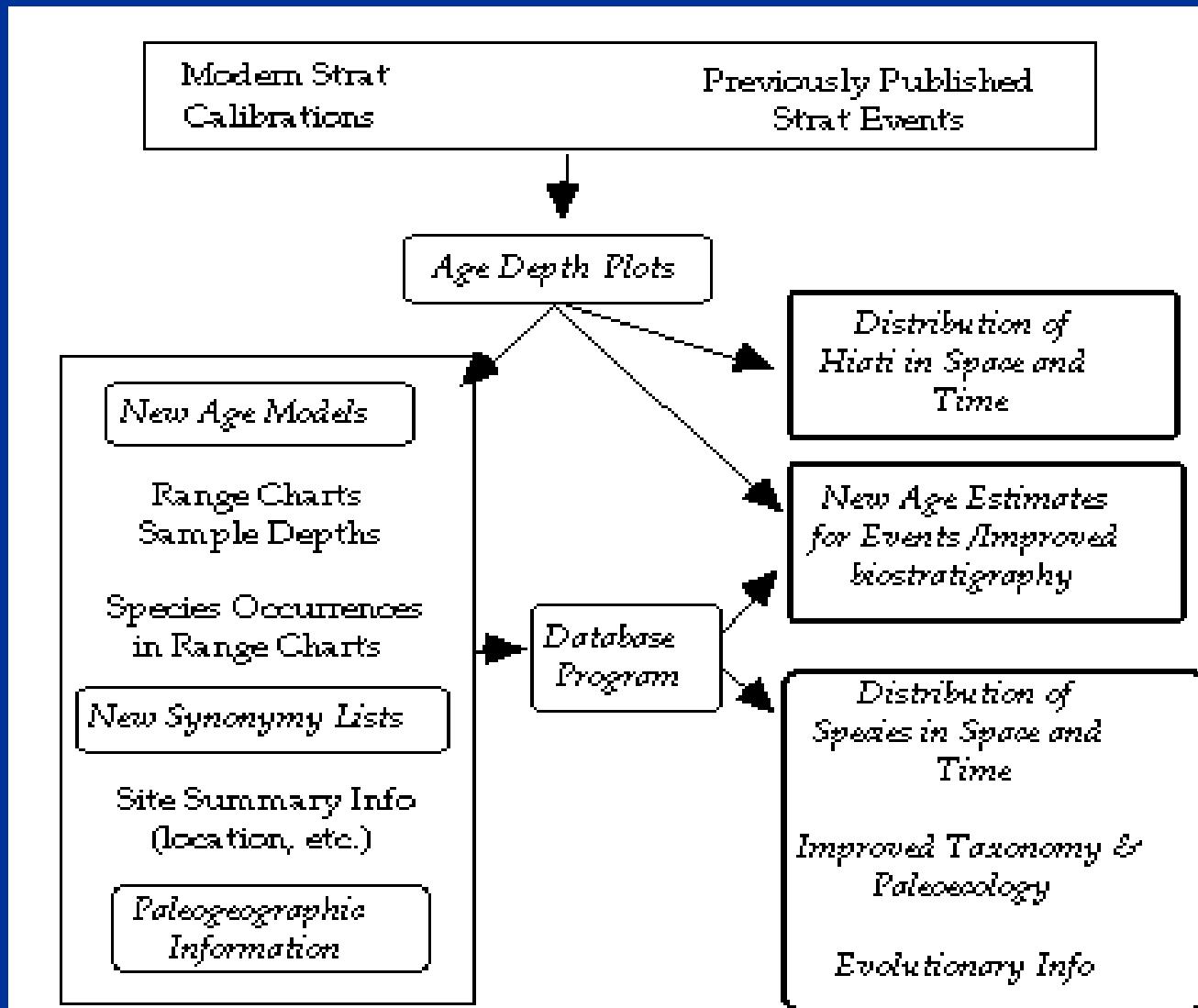
Types of Fossils used in the Gulf of Mexico



An example of foraminiferal faunal increase (high abundance) in a sample



Typical kinds of data and information utilized in paleontological reports and data bases



Benthic foraminifera from a sample arranged on a tray for microscopic identification



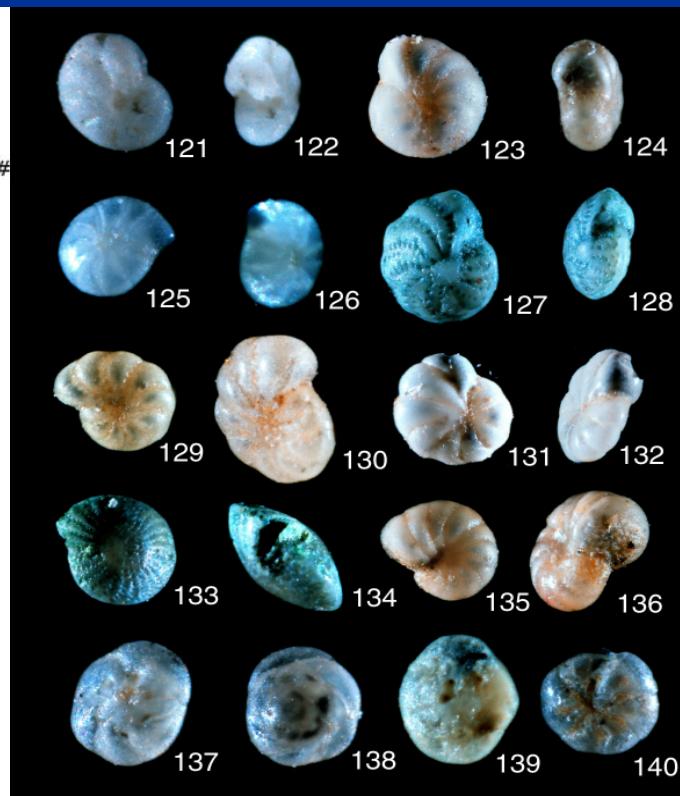
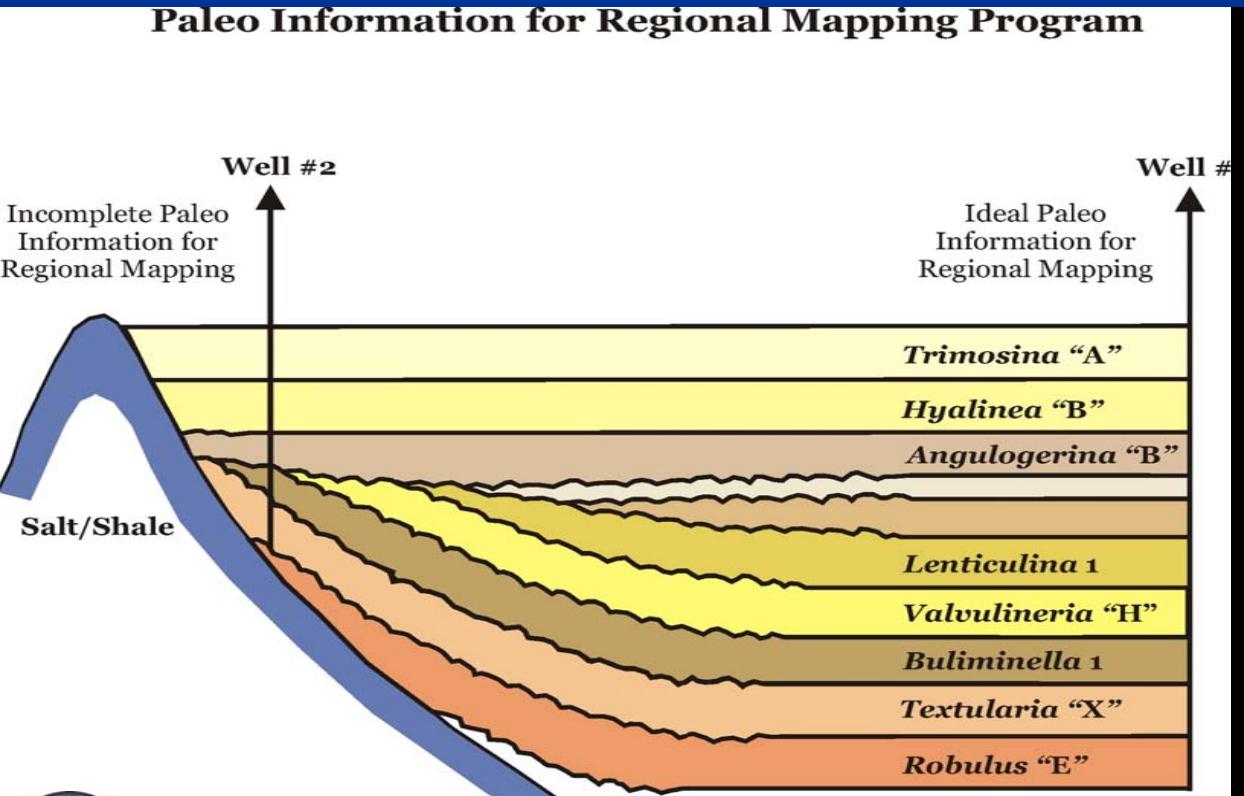
Handwritten identification of a foraminiferal assemblage, mid-1950s



1.	<i>Uvigerina pygmaea</i>	2.	<i>Nodosaria</i>
3.	<i>Cristellaria</i>	4.	<i>Polystomella</i>
5.	<i>Digarnerina digitata</i>	6.	<i>Textularia agglutinans</i>
7.	<i>Cassidulina levigata</i>	8.	<i>Bulinina</i>
9.	<i>Vulvulina gramen</i>	10.	<i>Lagenina</i>
11.	<i>Nonionina</i>	12.	<i>Lituola</i>
13.	<i>Peltinulina auricula</i>	14.	<i>Truncatulina lobata</i>
15.	<i>Globigerina</i>		

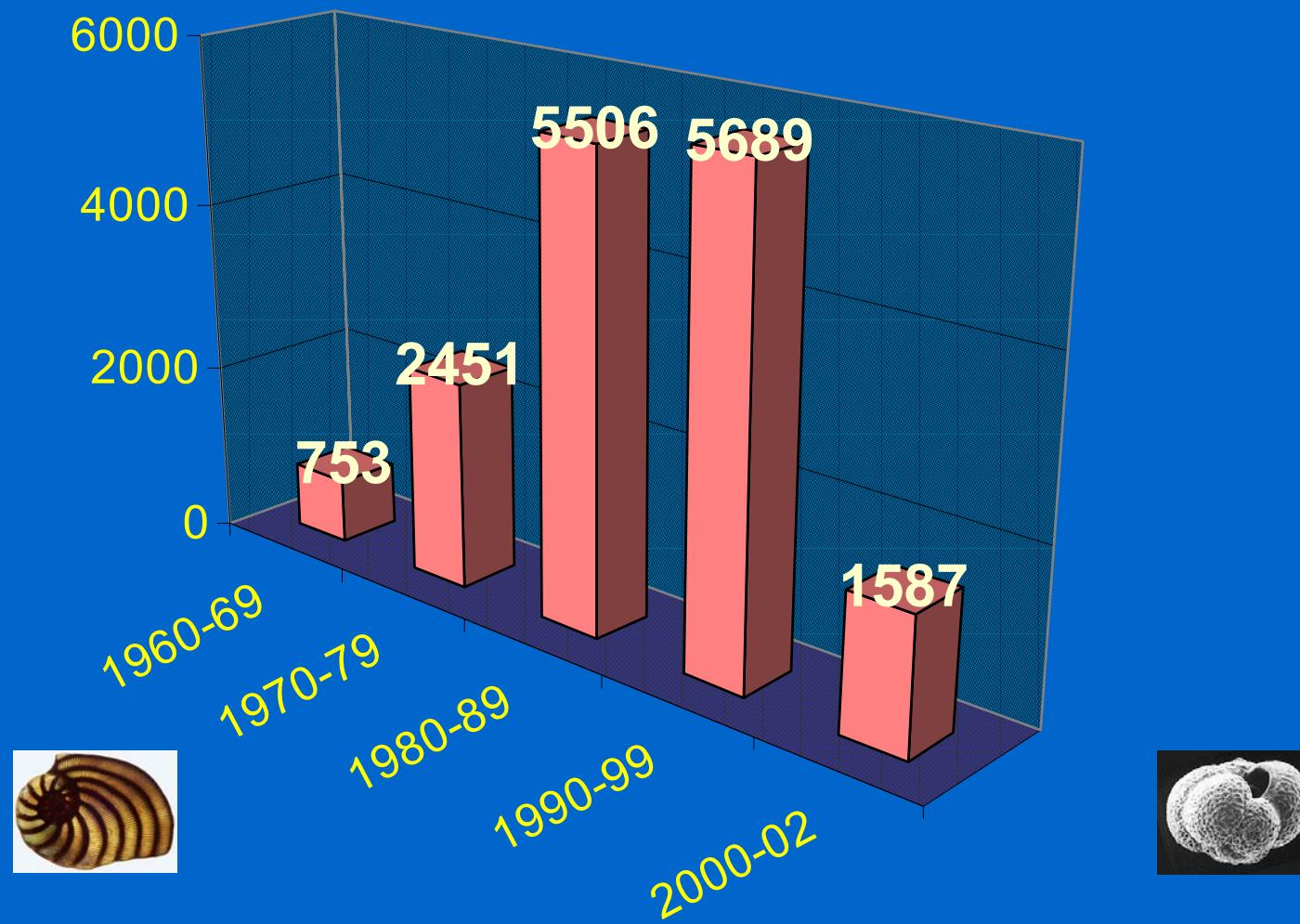
Neogene benthic foraminiferal stratigraphy in the Gulf of Mexico continental shelf

Paleo Information for Regional Mapping Program





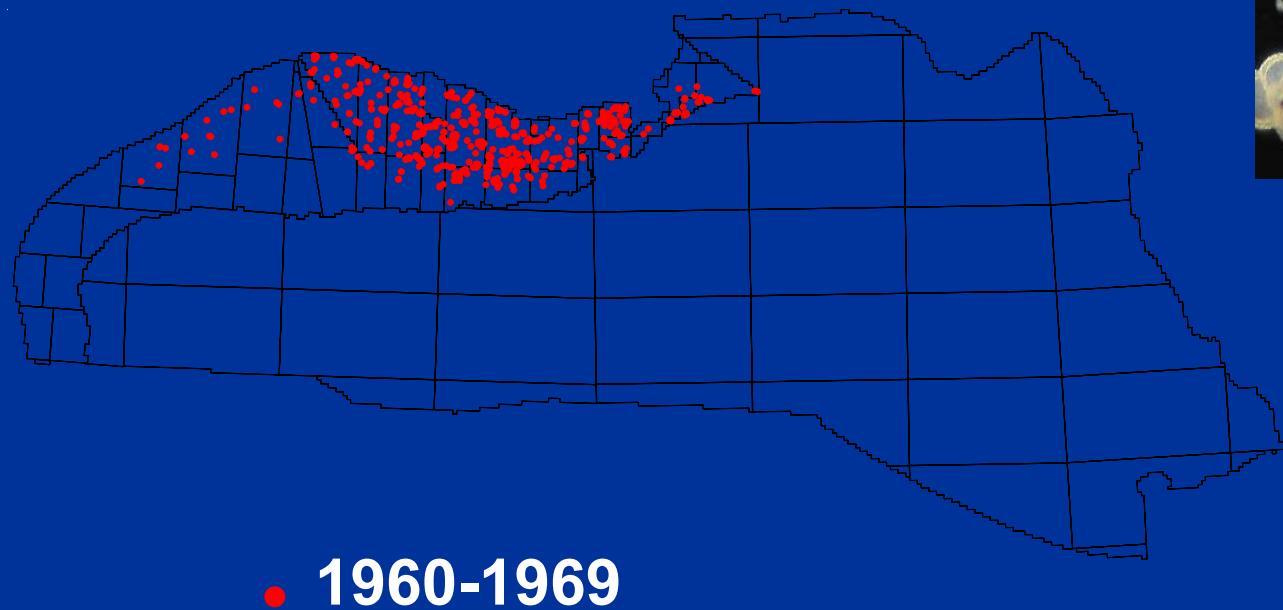
*Number of Gulf of Mexico OCS wells containing paleontologic reports**



*Source: MMS Gulf of Mexico Region Technical Management System paleontological database, March 2002



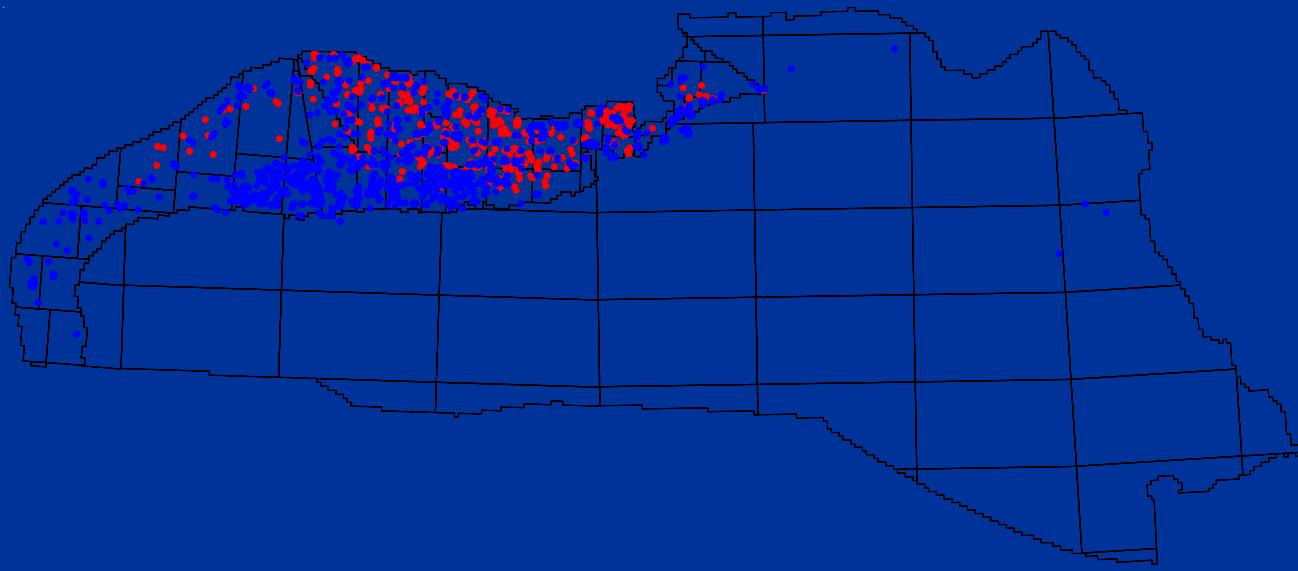
*Number of Gulf of Mexico offshore wells containing paleontological data and information, 1960-1969**



*Source: MMS Gulf of Mexico Region Technical Management System paleontological database, March 2002.



*Number of Gulf of Mexico offshore wells containing paleontological data and information, 1960-1979**



■ 1960-1969

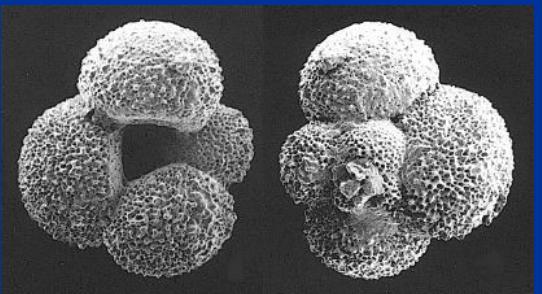
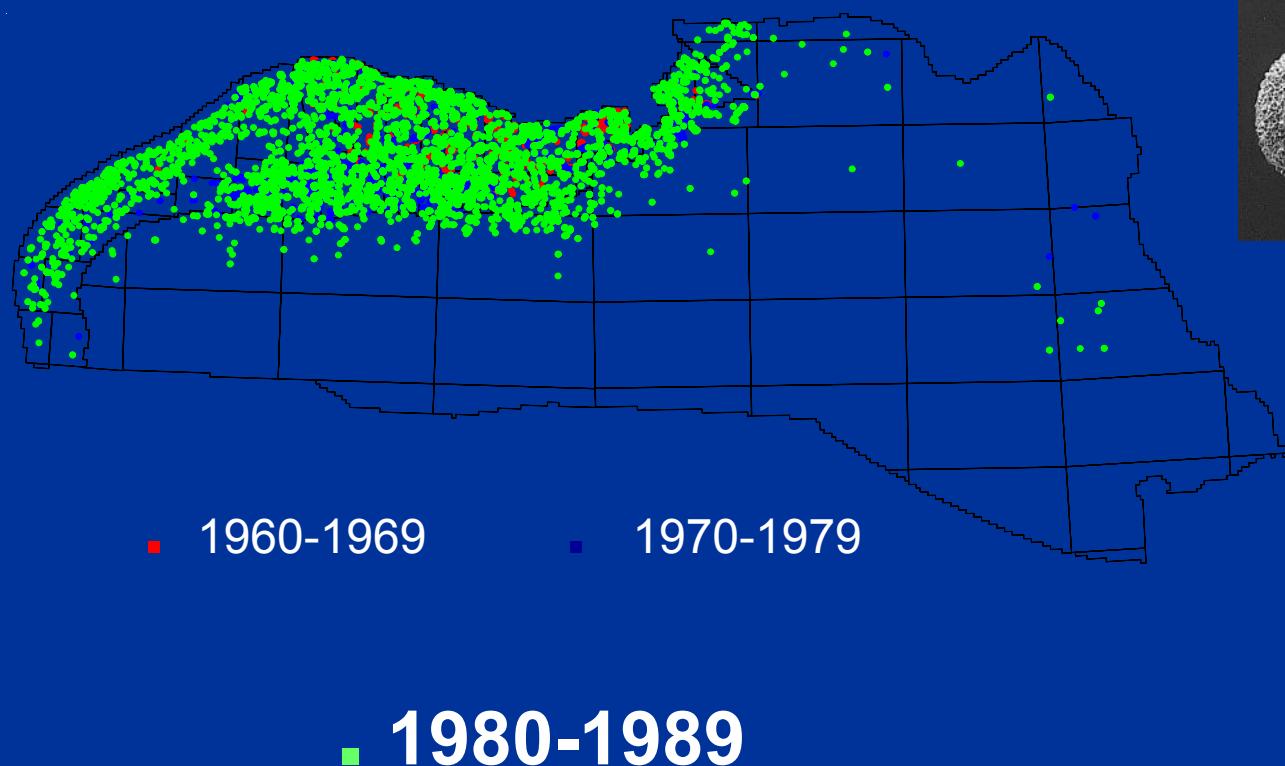
■ 1970-1979



*Source: MMS Gulf of Mexico Region Technical Management System paleontological database, March 2002.

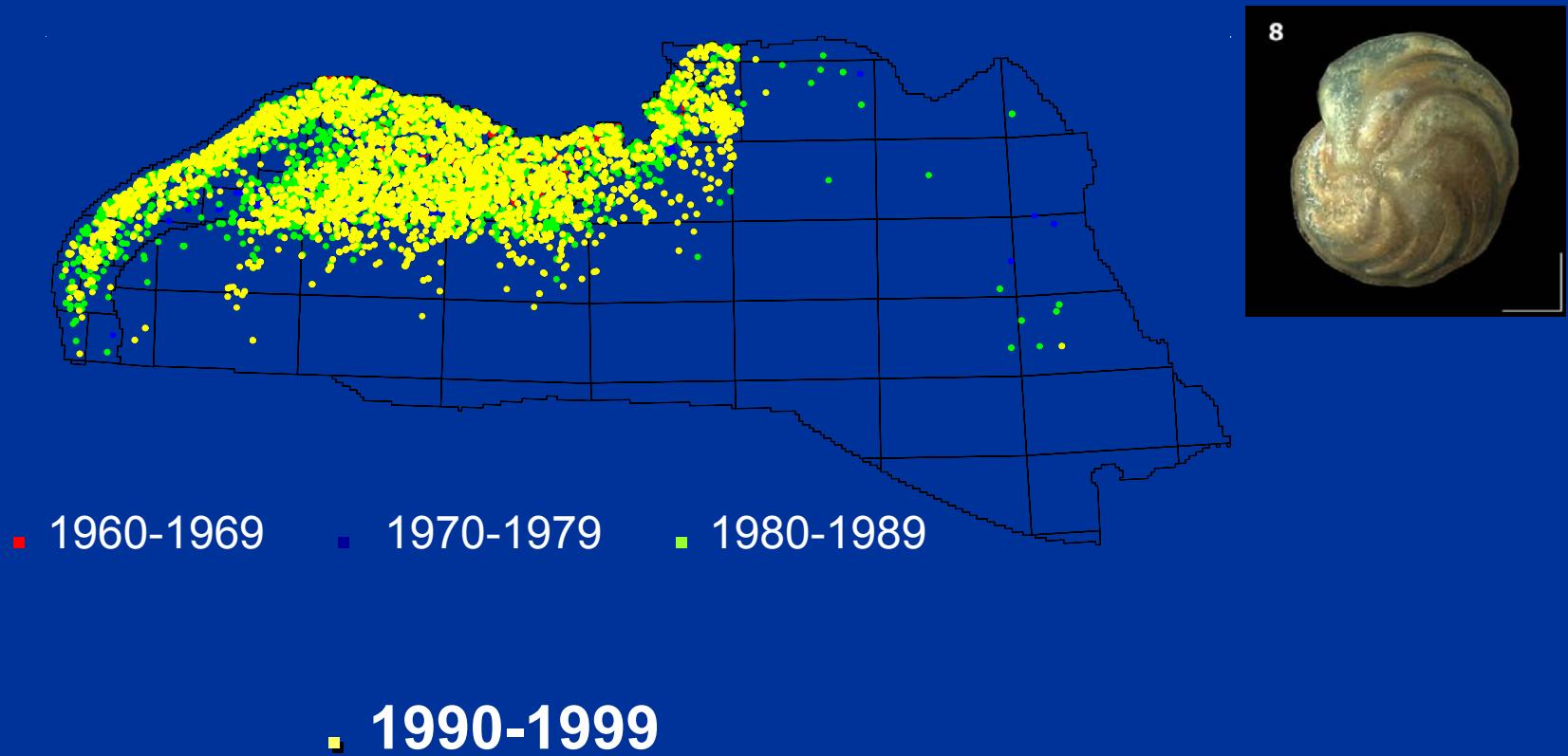


*Number of Gulf of Mexico offshore wells containing paleontological data and information, 1960-1989**



*Source: MMS Gulf of Mexico Region Technical Management System paleontological database, March 2002.

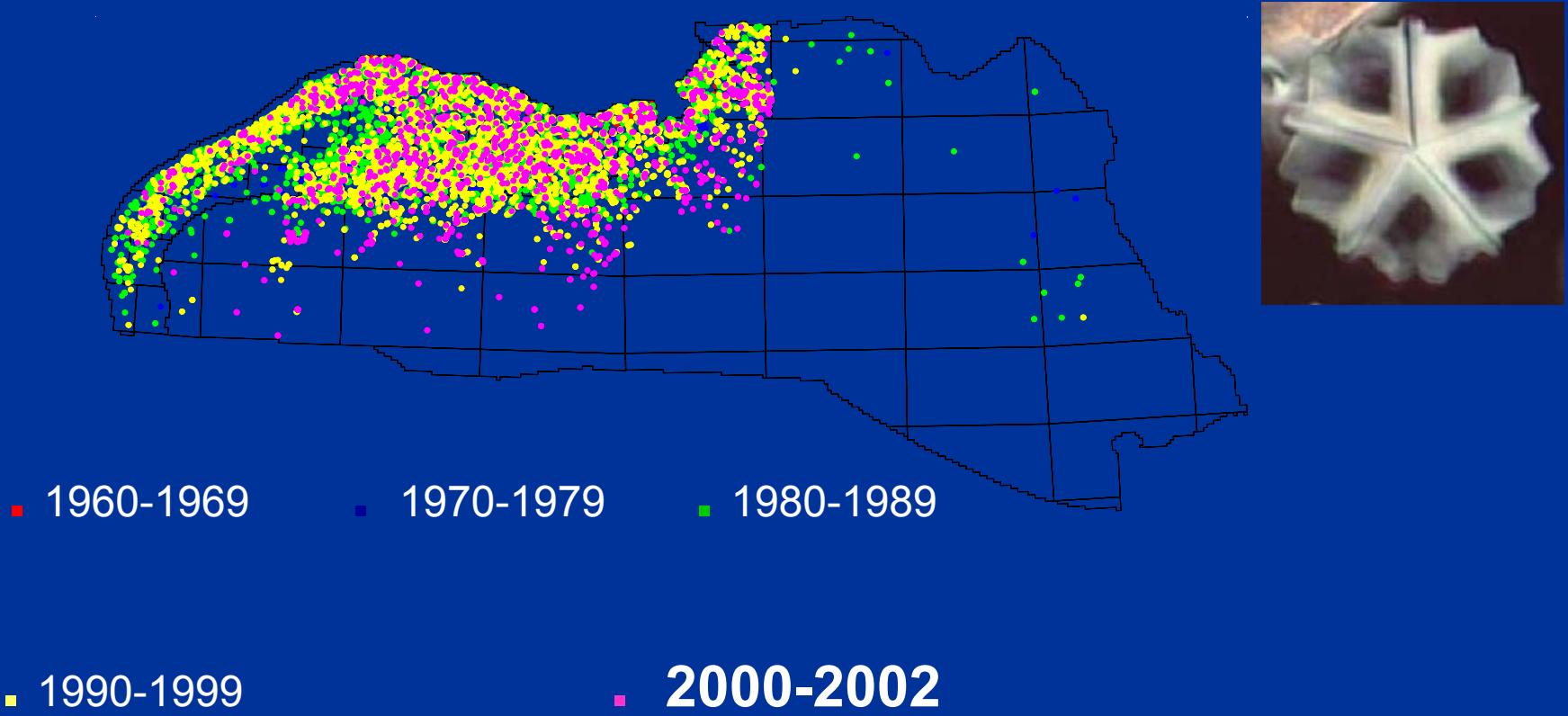
*Number of Gulf of Mexico offshore wells containing paleontological data and information, 1960-1999**



*Source: MMS Gulf of Mexico Region Technical Management System paleontological database, March 2002.



*Number of Gulf of Mexico offshore wells containing paleontological data and information, 1960-2002**



*Source: MMS Gulf of Mexico Region Technical Management System paleontological database, March 2002.

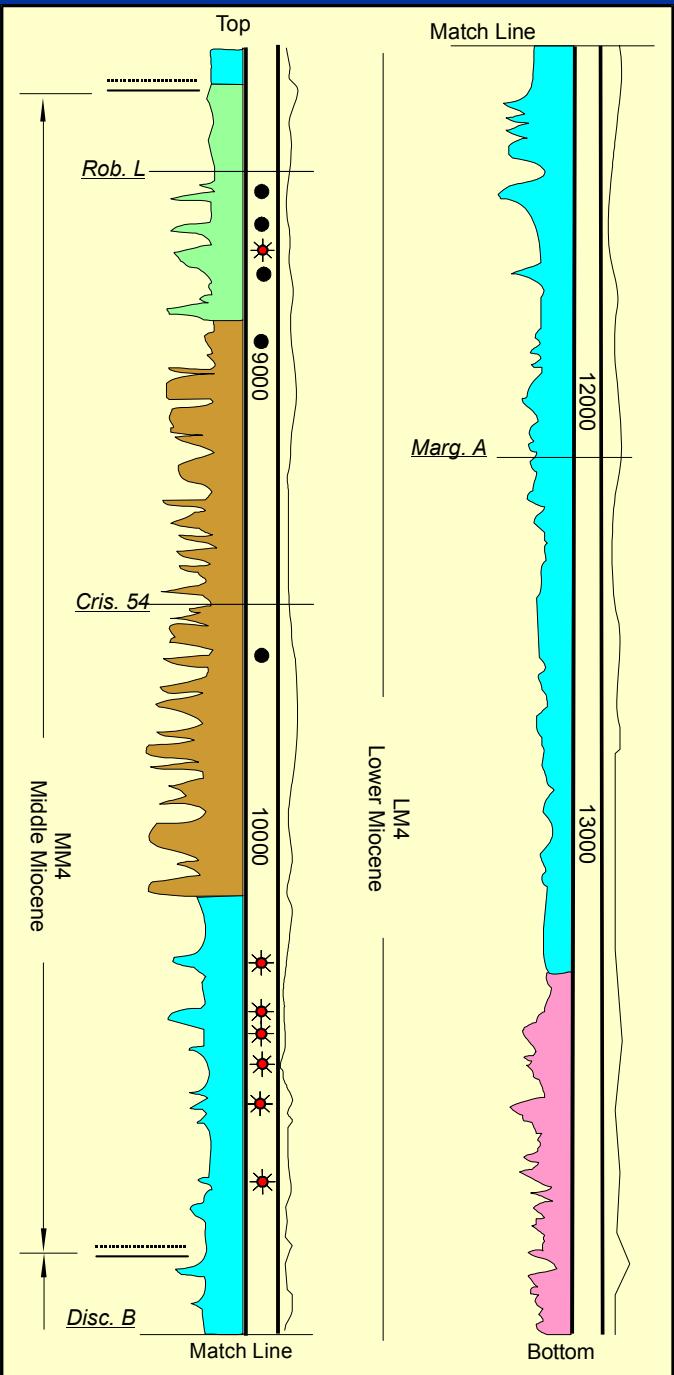


Chronostratigraphy

SYSTEM	SERIES	CHRONO-GROUPINGS	CHRONO-ZONES	BIOCHRONOZONES
QUATERNARY	Pleistocene	UPL	UPL-4	<i>Sangamon Fauna</i>
			UPL-3	<i>Trimosina "A" 1 st</i>
			UPL-2	<i>Trimosina "A" 2 nd</i>
			UPL-1	<i>Hyalinea "B"/Trimosina "B"</i>
		MPL	MPL-2	<i>Angulogerina "B" 1 st</i>
			MPL-1	<i>Angulogerina "B" 2 nd</i>
		LPL	LPL-2	<i>Lenticulina 1</i>
			LPL-1	<i>Valvulinaria "H"</i>
		UP	UP	<i>Buliminella 1</i>
		LP	LP	<i>Textularia "X"</i>
TERTIARY	Neogene	UM	UM-3	<i>Robulus "E"/Bigenerina "A"</i>
			UM-2	<i>Cristellaria "K"</i>
			UM-1	<i>Discorbis 12</i>
		MM9	MM-9	<i>Bigenerina 2</i>
			MM-8	<i>Textularia "W"</i>
		MM7	MM-7	<i>Bigenerina humblei</i>
			MM-6	<i>Cristellaria "Y"</i>
			MM-5	<i>Cibicides opima</i>
		MM4	MM-4	<i>Amphistegina "B"</i>
			MM-3	<i>Robulus 48</i>
			MM-2	<i>Cristellaria 54/Eponides 14</i>
			MM-1	<i>Gyroidina "K"</i>
		LM4	LM-4	<i>Discorbis "B"</i>
			LM-3	<i>Marginulina "A"</i>
		LM2	LM-2	<i>Siphonina davisi</i>
		LM1	LM-1	<i>Lenticulina haneeni</i>
PALEOGENE	Oligocene	FA1	Oligocene Rio-Anahuac	<i>Marginulina idiomorpha</i>
				Older Section



MMS Composite Type Log, using Miocene regional benthic stratigraphic markers, Gulf of Mexico continental shelf.



Typical biostratigraphic and paleobathymetric (=ecozonal) data and information for a Gulf of Mexico summary paleontologic report (Atwater Valley Block 136, Well 1), borehole view.

MMS - [Paleo - (GEPALDAT)]

Action Geologic Navigate Edit Block Record Field Query MMS Main Menu Window Help

Boreholes View

Area Block	AT	136	API Well Number	608184000900	
Lease Number	G10013		Paleo Report	2	of 3
Well Name	001				

Paleo Bugs

Paleo Sample MD	Paleo Sample SS	Fossil Zn At/ln	Paleo Age Cd	Fossil Zn Deter Cd	Eco Zn At/ln	Eco Zn Code	Eco Zn Deter Cd
5900	5827	AT	ZF	D	IN	4	D
9050	8971	IN	Q4	P	AT	4	D
10580	10481	AT		D	AT	5	D
12860	12635	IN	Q0	P	AT	5	D
15950	15435	IN	Q7	D	AT	5	D
16040	15515	AT	20	D	IN	5	D
16130	15596	AT	Q9	D	IN	5	D
16400	15841	AT	ZL	D	AT	5	D

Paleo Age Description: PLEISTOCENE SANGAMON FAUNA

Boreholes View Paleos Paleo Bugs Paleo Faunas

Record 2/8 <OSC> <DBG>



Public Paleontological Information

Contents:

Layout for ALL Public Paleo Reports.txt - layout for ASCII file
(gepaldmp.dmp and gepaldmp_new paleo.dmp - ALL Public Paleo Reports 01-Jan-1947 - 05-Mar-2002)

Layout for List of NEW Public Paleo.txt - layout of ASCII list file
(gepaldmp_new.dmp- list of NEW released reports 19-Sep-2001 - 05-Mar-2002)

gepaldmp.dmp - ASCII dump of all releasable paleo with lat/log & x/y coordinates
from 01-Jan-1947 - 05-Mar-2002

gepaldet.pdf - all releasable paleo reports in pdf format from 01-Jan-1947 - 05-Mar-2002

geplalla.pdf - list of all paleo NOT recommended for release in pdf format

geplallb.pdf - list of all paleo recommended for release in pdf format

biochart_new2002.pdf - DOI, MMS, Gulf of Mexico OCS Region, Biostratigraphic Chart

biochart_small2002.pdf - Biostratigraphic Chart reduced size

gepaldmp_newlist.dmp - a list, in ASCII format of **new** Paleo Reports releasable since
the previous release (additional Public Paleo from 19-Sep-2001 - 05-Mar-2002)

gepaldmp_newlist.pdf - a list, in pdf format, of **new** Paleo Reports releasable since
the previous release (additional Public Paleo from 19-Sep-2001 - 05-Mar-2002)

gepaldmp_new paleo.dmp - ASCII dump of new releasable paleo from 19-Sep-2001 - 05-Mar-2002

gepaldet_new reports.pdf - new releasable paleo reports in pdf format from
19-Sep-2001 - 05-Mar-2002

Getting Started: Select Notepad and open instruc.txt or select Adobe Acroread,
select Reader, select 16bit or 32bit, select Setup.exe and open instruc.pdf

System Requirements: 486 or higher IBM or compatible computer with
Windows 3.1, 95 or 98 and 8 MB of RAM.

(Current as of March 8, 2002)

Biostratigraphic and paleobathymetric (=ecozonal) data and information for a Gulf of Mexico OCS paleontologic summary report (Alaminos Canyon Block 600, Well 1), from the Public Paleontological Information CD-ROM.

GEPALDET	UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION			GEOLOGIC 05-MAR-2002 PAGE: 18			
<i>Paleo for Public Release (Date Specific)</i>							
Start Date: 01-JAN-1947							
End Date: 05-MAR-2002							
Area Block: AC 600	Date of Summary: 21-MAY-1997	First Sample Examined: 9290					
Lease Number: G08580	Source of Paleo: MINERALS MANAGEMENT SERVICE	Borehole MD: 11253					
Well Name: 001	Paleo Done By: ROBERT WITROCK	Borehole TVD: 11253					
API Well Number: 608054000100	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation: 50					
Paleo Report Num: 3 of 4	Sample Range: 9290 - 11254	Water Depth: 7620					
Public Info Code: Y 22-JUN-1998	Ecozone Eq MMS: Y	Paleo ID: 002					
Remark: AT TD, STILL IN GLOBOROTALIA WILCOXENSIS ZONE; SEE REPORT FOR DETAILS.							
Measured Depth	Definite/Possible	Paleo Top	Definite/Possible	Eco Zone			
9290	DEF	AT FIRST SAMPLE EXAMINED	DEF	AT 5			
9500	DEF	AT SAND	DEF	AT 5			
9560	POS	AT OLIGOCENE DISCORBIS RESTRICTED=ROB."A"=DISC. ZONE	DEF	AT 5			
9800	DEF	AT UPPER EOCENE GLOBOROTALIA COCOAENSIS	DEF	AT 5			
10100	DEF	IN UPPER EOCENE TEXTULARIA HOCKLEYENSIS	DEF	AT 5			
10370	POS	AT MIDDLE EOCENE CERATOBULIMINA EXIMIA	DEF	AT 5			
10880	DEF	AT MIDDLE EOCENE HAPLOCYtheridea STENZELI	DEF	AT 5			
11030	DEF	AT LOWER EOCENE-UPPER PALEOCENE WILCOX GROUP/PRV.STAGE	DEF	AT 5			
11031	DEF	AT LOWER EOCENE GLOBOROTALIA WILCOXENSIS	DEF	AT 5			
11240	DEF	AT LAST SAMPLE EXAMINED	DEF	AT 5			



This report contains public paleo reports only for the time period stated



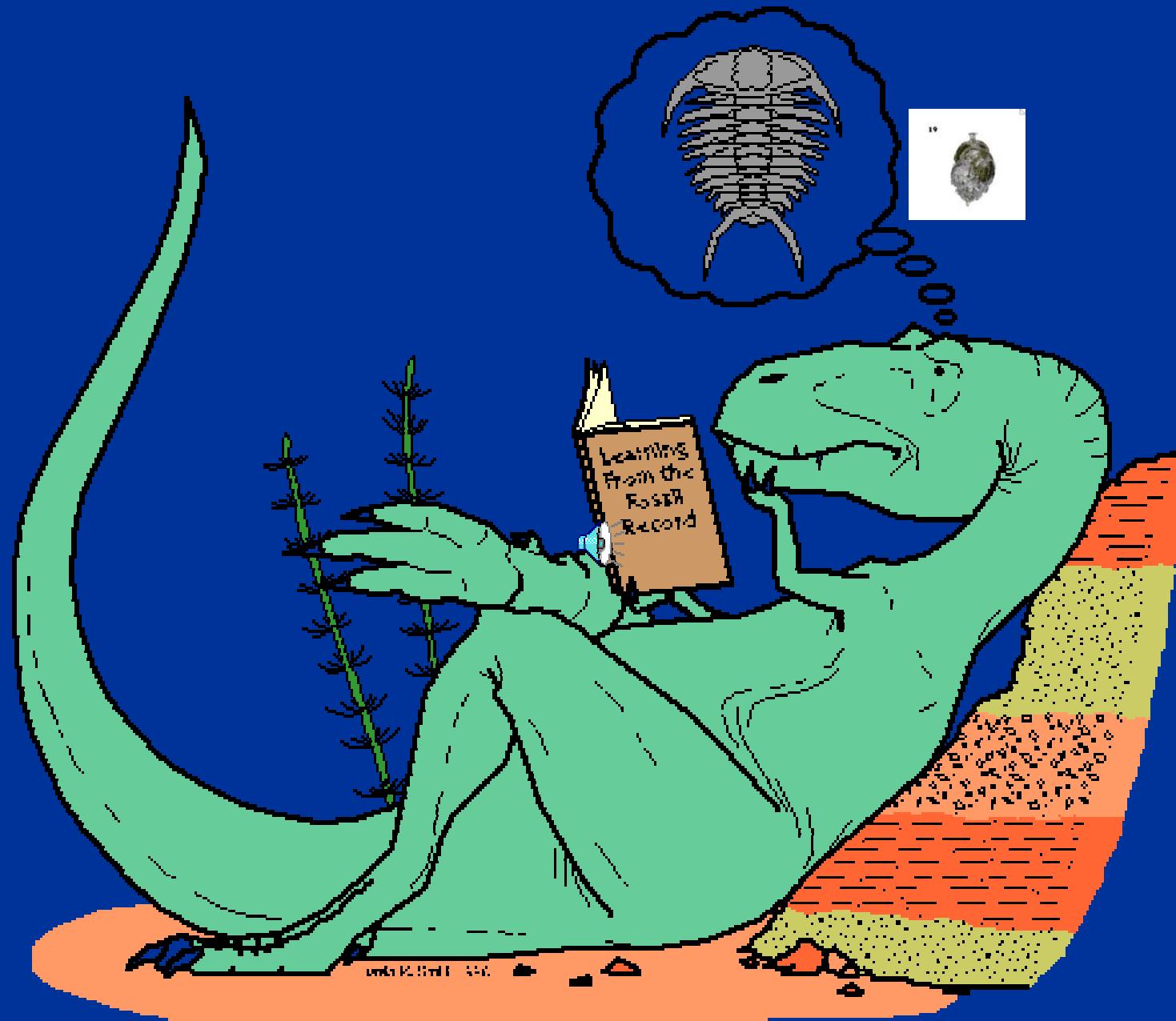


MMS Biostratigraphic Chart (1985-2001)

Recent through Oligocene

Chronostrat. Reference Section			ADP Strat. Code	Biostratigraphic Interval Zones		
SYSTEM	SERIES	STAGE		Foraminiferal Regional Markers Indicator Fauna* Local Markers*		Regional Deep Water Biocacies ADP Code=[W]
QUATERNARY	[Q]	HOLO.	U	Recent Fauna <i>Globorotalia flexuosa</i> Wisconsin Fauna** <i>Sangamon Fauna**</i> <i>Illinoian Fauna**</i> <i>Trimosina "A"</i> 2nd Occurrence Trimosina "A" <i>Globorotalia tosaensis tosaensis</i> <i>Hyalinea "B" = Trimosina "B"</i>	Regional Deep Water Biocacies ADP Code=[W]	<i>Pseudoemiliania lacunosa</i>
			P			
			P			
			P			
			Q12			
			Q4			
		PLEISTOCENE	Q14		Regional Deep Water Biocacies ADP Code=[W]	<i>Discoaster brouweri</i>
			Q5			
			Q0			
			Q19			
TERTIARY	[P]	NEOGENE	Q6		Regional Deep Water Biocacies ADP Code=[W]	<i>Discoaster asymmetricus</i>
			M			
			I			
			D			
			D			
			L			
		SUBSYSTEM	E		Regional Deep Water Biocacies ADP Code=[W]	<i>Discoaster surculus</i>
			Q7			
			Q15			
			Q3			
TERTIARY	[P]	PLIOCENE	Q18		Regional Deep Water Biocacies ADP Code=[W]	<i>Discoaster variabilis</i>
			Q20			
			Q21			
			Q22			
			Q23			
			Q8			
		MIO	Q24		Regional Deep Water Biocacies ADP Code=[W]	<i>Reticulofenestra pseudoumbilica</i>
			Q25			
			Q9			
			Q28			
			Q29		Regional Deep Water Biocacies ADP Code=[W]	<i>Amaurolitus (Ceratolithus) tricorniculatus</i>
			P1			
			30			
			31			
			32		Regional Deep Water Biocacies ADP Code=[W]	<i>Discoaster quinqueramus</i>
			P5			
			33			
			34			
			P2		Regional Deep Water Biocacies ADP Code=[W]	
			35			
			37			
			P4			
			P6		Regional Deep Water Biocacies ADP Code=[W]	
			42			
			R2			
			R4			
			R5		Regional Deep Water Biocacies ADP Code=[W]	
			R6			
			R7			
			R8			

- employed primarily provincial benthic foraminifera (extrapolation of onshore biostratigraphy from the 1920s to 1980s)
- Plio-Pleistocene chronostratigraphic and biostratigraphic units based on poorly differentiated glacial units.



Gulf of Mexico Basin Biostratigraphic Index Microfossils

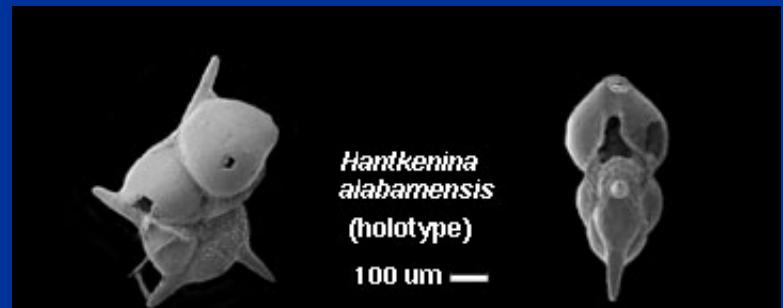
A Geoscientist's Guide

PARTS I AND II
FORAMINIFERS



GCSSEPM

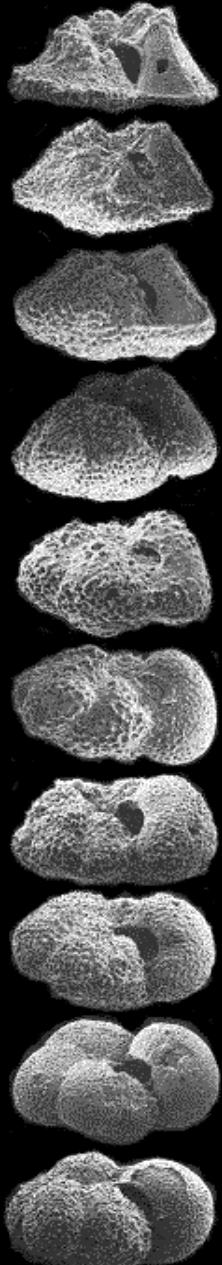
Picou, E. B., Jr., B. F. Perkins, N. C. Rosen, and M. J. Nault, eds., 1999, Gulf of Mexico basin biostratigraphic index microfossils - a geoscientist's guide: foraminifers and nannofossils, parts I and II, Oligocene through Pleistocene foraminifers: Gulf Coast Society of Economic Paleontologists and Mineralogists Foundation, 215 p., 3 charts, 2 tables of synonyms (Text and CD-ROM).





Late Paleocene

58 ma*



Early Paleocene

64.5 ma*

Rapid evolution
of planktic
foraminifera over
the last 150
million years =
excellent high-
resolution
biostratigraphic
markers for
delineating
chronozones.

*The
Pleistocene-
Recent
nannoplankton
species
Emiliania
huxleyi,
floating in the
ocean water
column.*





MMS Biostratigraphic Chart (2002)

Recent through Oligocene

Time (mya) (not to scale)	Chronostratigraphy				Biostratigraphic Events					Lithostratigraphy Provincial stage or formation
	SYSTEM	SUB SYSTEM	SERIES	STAGE	MMS Strat. Code	Planktic and benthic foraminiferal regional and local markers	Regional deepwater shelf biocores MMS Code=(W)	MMS Strat. Code	Calcareous nannoplanktic regional and local markers	
QUATERNARY	NEOGENE	TERTIARY	PLIOCENE	[P]	Holocene	Q10 Globorotalia inflata		NQ35		Glacial and Interglacial Stages
					PLEISTOCENE [Q]	Q1 Globorotalia flexuosa		NQA	Emiliana huxleyi (base of acme)	
						Q4 Sangamon Fauna			Gephyrocapsa caribbeanica	
						11 Globorotalia truncatulinoides coiling change right to left		NQ36		
						Q5 Trimosina "A"		NQ37	Gephyrocapsa parallela	
						26 Stilostomella antillaea		NQ16	Pseudoemiliania ovata	
						27 Globorotalia incisa		NQ1	Gephyrocapsa margarelli	
						17 Sphaeroidinella dehiscens acme A			Pseudoemiliania lacunosa "A"	
						Q0 Trimosina "A" acme			Pseudoemiliania lacunosa "B"	
						16 Angulogerina magna				
NEOGENE	PLIOCENE	[P]	[PL]	[PL]		Q5 Hyalinea balthica				CITRONELLE
						36 Sphaeroidinella dehiscens acme B		NQE	Pseudoemiliania lacunosa "C"	
						Q7 Angulogerina "B"		NQ44	Scyphosphaera pulcherima,	
						99 Uvigerina hispida		NQV	Gephyrocapsa sp. (large variety)	
						P7 Globorotalia crassula acme		NP41	Discoaster brouweri	
						P11 Globorotalia praehirsuta		NP42	Discoaster brouweri "A"	
						21 Cristellaria "S"		NP43	Discoaster pentaradiatus	
						89 Globorotalia exilis		NP44	Discoaster surculus	
						20 Globorotalia miocenica		NP45	Discoaster asymmetricus,	
						P12 Globorotalia pertenuis		NP46	Discoaster variabilis	
TERTIARY	PLIOCENE	[P]	[PL]	[PL]		P8 Lenticulina 1		NP47	Cycloperforolithus cariae,	CITRONELLE
						23 Bolivina imporsata / "P"		NP48	Discoaster tamalis	
						22 Textularia crassisepta / "P"				
						40 Ceratobulimina pacifica				
						24 Cassidulina laevigata carinata acme				
						41 Haplophragmoides emaciatum				
						25 Saracenaria "H"				
						P10 Globorotalia multicamerata				
						P9 Globotruncanites altispira				
						29 Cyclammina sp.				
NEOGENE	PLIOCENE	[P]	[PL]	[PL]		32 Arenaceous Fauna				CITRONELLE
						44 Cibicides grossoperforatus				
						45 Sphaeroidinellopsis seminulina				
						P5 Buccella (Eponides) hannah acme		NP01	Sphenolithus abies	
						98 Cibicides marsi		NP02	Reticulofenestra pseudoumbilica	
						30 Globorotalia margaritae		NPY	Dictyococcites antarcticus	
						31 Uvigerina rustica		NPP	Sphenolithus abies "B"	
						45 Globigerina druryi		NP08	Amaurolitus tricorniculatus	
						31 Globigerina nepenthes		NPA	Ceratolithus acutus	
						34 Siphonotextularia jugosa / "J"		NPW	Discoaster challengerii	
TERTIARY	MIO	[M]	[M]	[M]		P2 Buliminella 1				CITRONELLE
						35 Sigmoilina "P" / cf. schlumbergeri		NRV	Discoaster quinqueramerus / "A"	
						37 Globigerinoides mitra		NRE	Discoaster berggrenii / "B"	
						48 Globorotalia menardii coiling change right to left		NRX	Reticulofenestra rotaria	
						R14 Globorotalia margaritae primitiva		NRX	Discoaster berggrenii "A"	
						47 Textularia "X"				
						48 Textularia tatumii				
						P16 Bolivina denticulata				
						49 Textularia 6				

- extensively added planktic foraminifera and coccoliths (nannoplankton) to the MMS stratigraphic chart
- Neogene chronostratigraphic and biostratigraphic units calibrated to globally standardized stratigraphic units

				MMS Chronozone	New Detailed Biostratigraphy (effective January 2002)		Previous Biostratigraphy (until December 2001)	
System	Series		New	Old	Foraminiferal	Nannoplanktic	Foraminiferal	Nannoplanktic
Quaternary	Holocene				<i>Globorotalia inflata</i>			
	Pleistocene	Upper	UPL	UPL	<i>Globorotalia flexuosa</i>	<i>Emiliana huxleyi</i> (base of acme)		
		Middle	MPL		<i>Sangamon fauna</i>	<i>Gephyrocapsa caribbeanica</i>	<i>Sangamon fauna</i>	
		Lower	LPL		<i>Globorotalia truncatulinoides</i> coil ch R/L	<i>Gephyrocapsa parallela</i>		
					<i>Trimosina "A"</i>	<i>Pseudoemiliana ovata</i>	<i>Trimosina "A" 1st</i>	
					<i>Stilostomella antillaea</i>	<i>Gephyrocapsa margarelli</i>		
					<i>Globorotalia incisa</i>	<i>Pseudoemiliana lacunosa "A"</i>	<i>Trimosina "A" 2nd</i>	
					<i>Sphaeroidinella dehiscens</i> acme A	<i>Pseudoemiliana lacunosa "C"</i>	<i>Hyalinea "B" / Trim "B"</i>	
					<i>Trimosina "A" Acme</i>	<i>Scyphosphaera pulcherima,</i>	<i>Angulogerina "B" 1st</i>	
					<i>Angulogerina magna</i>	<i>Gephyrocapsa sp (large variety)</i>	<i>Angulogerina "B" 2nd</i>	
Tertiary	Pliocene	Upper	UP	LPL	<i>Hyalinea balthica</i>	<i>Helicosphaera sellii</i>		
					<i>Sphaeroidinella dehiscens</i> acme B	<i>Lithostromation perdurum</i>		
					<i>Angulogerina "B"</i>			
					<i>Uvigerina hispida</i>	<i>Calcidiscus macintyrei</i>		
					<i>Globorotalia crassula</i> acme	<i>Discoaster brouweri</i>		
					<i>Globorotalia praehirsuta</i>	<i>Discoaster brouweri "A"</i>		
					<i>Cristellaria "S"</i>			
					<i>Globorotalia menardii</i> coil ch L/R	<i>Discoaster pentaradiatus</i>		
					<i>Globorotalia exilis</i>			
					<i>Globorotalia miocenica</i>			
Tertiary	Miocene	Lower	LP	UP	<i>Globorotalia pertenuis</i>		<i>Lenticulina 1</i>	
					<i>Lenticulina 1</i>			
					<i>Bolivina imporata/ "P"</i>	<i>Discoaster surculus</i>		
					<i>Textularia crassisepta/ "P"</i>			
					<i>Ceratobulimina pacifica</i>			
					<i>Cassidulina laevigata carinata</i> acme	<i>Discoaster asymmetricus,</i>		
					<i>Haplophragmoides emaciatum</i>	<i>Discoaster variabilis</i>		
					<i>Saracenaria "H"</i>			
					<i>Globorotalia multicamerata</i>	<i>Cycloperolithus cariae,</i>		
					<i>Globoquadrina altispira</i>	<i>Discoaster tamalis</i>		
Tertiary	Miocene	Upper	UM	LP	<i>Cyclammina sp.</i>		<i>Valvulinaria "H"</i>	
					<i>Arenaceous Fauna</i>			
					<i>Cibicides grossperforatus</i>			
					<i>Sphaeroidinellopsis seminulina</i>			
					<i>Buccella (Eponides) hannai</i> acme	<i>Sphenolithus abies</i>		
					<i>Cibicides marsi</i>	<i>Sphenolithus abies</i>		
					<i>Globorotalia margaritae</i>	<i>Reticulofenestra pseudoumbilicalis</i>		
					<i>Uvigerina rustica</i>	<i>Dictyococcites antarcticus</i>		
					<i>Globigerina druryi</i>			
					<i>Globigerina nepenthes</i>			
Tertiary	Miocene	Lower	LP	UP	<i>Siphonotextularia jugosa/ "J"</i>	<i>Sphenolithus abies "B"</i>		
					<i>Buliminella 1</i>			
					<i>Sigmaolina "P" / cf. schlumbergeri</i>	<i>Amaurolithus tricorniculatus</i>		
					<i>Globigerinoides mitra</i>	<i>Ceratolithus acutus</i>		
						<i>Discoaster challengerii</i>		
					<i>Globorotalia menardii</i> coil ch R/L	<i>Discoaster quinqueramus/ "A"</i>		
						<i>Discoaster berggrenii/ "B"</i>		
						<i>Reticulofenestra rotaria</i>		
						<i>Discoaster berggrenii/ "A"</i>		
							<i>Textularia "X"</i>	

Biostratigraphic and paleobathymetric (=ecozonal) data and information for a Gulf of Mexico OCS paleontologic summary report (Mississippi Canyon Block 268, Well A-1), from the Public Paleontological Information CD-ROM

GEPALDET	UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION			GEOLOGIC			
				05-MAR-2002			
				PAGE: 8073			
<i>Paleo for Public Release (Date Specific)</i>							
Start Date: 01-JAN-1947 End Date: 05-MAR-2002							
Area Block: MC 268 Lease Number: G02969 Well Name: A001 API Well Number: 608174007100 Paleo Report Num: 2 of 2 Public Info Code: Y 21-OCT-1981	Date of Summary: 30-JAN-1986 Source of Paleo: MINERALS MANAGEMENT SERVICE Paleo Done By: ROBERT WITROCK Drilling Operator: EXXON MOBIL CORPORATION Sample Range: 740 - 12430 Ecozone Eq MMS:	First Sample Examined: 740 Borehole MD: 12430 Borehole TVD: 11988 Rkb Elevation: 135 Water Depth: 343 Paleo ID: 002					
Remark: ANGULGERINA B, CRISTELLARIA S NOT NOTED; TEXTULARIA X NOT REACHED; SEE REPORT FOR DETAILS.							
Measured Depth	Definite/Possible	Paleo Top	Definite/Possible	Eco Zone			
740	DEF	IN PLEISTOCENE GLOBOROTALIA FLEXUOSA	DEF	AT 3			
980	DEF	AT LOCAL MARKER FAUNAL INCREASE	DEF	AT 3			
1400	DEF	AT CEMENT	DEF	AT 0			
1670	DEF	IN PLEISTOCENE GLOBOROTALIA FLEXUOSA	DEF	AT 3			
2690	DEF	AT - - - -	DEF	AT 4			
2720	DEF	AT DRILLING MATERIAL	DEF	AT 0			
3050	DEF	AT PLEISTOCENE TRIMOSINA "A"	DEF	AT 4			
3440	DEF	AT CEMENT	DEF	AT 0			
5330	POS	AT PLEISTOCENE HYALINEA "B" = TRIMOSINA "B"	DEF	AT 4			
5510	DEF	AT PLEISTOCENE HYALINEA "B" = TRIMOSINA "B"	DEF	AT 4			
5511	DEF	AT DRILLING MATERIAL	DEF	AT 0			
6590	DEF	AT OXIDIZED SHALE	DEF	AT 0			
6710	POS	AT LOCAL MARKER SARACENARIA "H"=IN LENTICULINA 1	DEF	AT 3			
6800	DEF	AT LOCAL MARKER SARACENARIA "H"=IN LENTICULINA 1	DEF	AT 3			
7190	DEF	AT LOCAL MARKER FAUNAL INCREASE	DEF	AT 3			
7940	DEF	AT LOCAL MARKER FAUNAL INCREASE	DEF	AT 4			
8000	DEF	AT CEMENT	DEF	AT 0			
8510	DEF	AT LOCAL MARKER FAUNAL INCREASE	DEF	AT 4			
8600	DEF	AT SAND	DEF	AT 0			
8900	DEF	AT CEMENT	DEF	AT 0			
9320	DEF	AT LOCAL MARKER FAUNAL INCREASE	DEF	AT 4			

This report contains public paleo reports only for the time period stated



*Biostratigraphic and paleobathymetric (=ecozonal) data
and information for a Gulf of Mexico OCS paleontologic
summary report (East Breaks Block 157, Well 2), from the
Public Paleontological Information CD-ROM*

GEPALDET	UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION				GEOLOGIC
					05-MAR-2002
					PAGE: 705
<i>Paleo for Public Release (Date Specific)</i>					
Start Date: 01-JAN-1947					
End Date: 05-MAR-2002					
Area Block: EB 157	Date of Summary:	30-OCT-1991	First Sample Examined:	2330	
Lease Number: G11412	Source of Paleo:	OPERATOR	Borehole MD:	6313	
Well Name: 002	Paleo Done By:	PALEO-DATA, INC.	Borehole TVD:	6313	
API Well Number: 608044015200	Drilling Operator:	AGIP PETROLEUM CO INC	Rkb Elevation:	73	
Paleo Report Num: 1 of 4	Sample Range:	2330 - 6350	Water Depth:	941	
Public Info Code: Y 03-NOV-2001	Ecozone Eq MMS:	Y	Paleo ID:	002	
 Remark: 3500=SPH DEHISCENS ACME A 4630=SPH DEHISCENS ACME B					
<u>Measured Depth</u>	<u>Definite/Possible</u>	<u>Paleo Top</u>	<u>Definite/Possible</u>	<u>Eco Zone</u>	
2330	DEF	AT FIRST SAMPLE EXAMINED	DEF	IN	4
2420	DEF	AT - - - -	DEF	AT	5
3320	DEF	AT PLEISTOCENE TRIMOSINA "A"	DEF	AT	5
3500	DEF	IN PLEISTOCENE TRIMOSINA "A"	DEF	AT	5
4130	DEF	AT PLEISTOCENE HYALINEA "B" = TRIMOSINA "B"	DEF	AT	5
4630	DEF	IN PLEISTOCENE ANGULOGERINA "B"	DEF	AT	5
5110	POS	AT PLEISTOCENE CRISTELLARIA "S"	DEF	AT	5
6350	DEF	AT LAST SAMPLE EXAMINED	DEF	AT	5



Biostratigraphic and paleobathymetric (=ecozonal) data and information for a Gulf of Mexico OCS paleontologic summary report (Atwater Valley Block 26, Well 1), from the Public Paleontological Information CD-ROM.

GEPALDET	UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION				GEOLOGIC
					05-MAR-2002 PAGE: 36
<i>Paleo for Public Release (Date Specific)</i>					
Start Date: 01-JAN-1947					
End Date: 05-MAR-2002					
Area Block: AT 26	Date of Summary: 01-SEP-1999	First Sample Examined: 9210			
Lease Number: G13197	Source of Paleo: OPERATOR	Borehole MD: 17649			
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD: 17646			
API Well Number: 608184001100	Drilling Operator: BP AMOCO CORPORATION	Rkb Elevation: 46			
Paleo Report Num: 1 of 1	Sample Range: 9210 - 17649	Water Depth: 6505			
Public Info Code: Y 30-APR-2001	Ecozone Eq MMS: Y	Paleo ID: 001			
<p>Remark: COMPANY-INTEGRATED FORAM/NANNO REPORT; 9210-9375 = ALMOST ALL CEMENT, WITH REWORKED PLIOCENE NANNOS; 9435-9510 SAMPLE GAP IN FORAMS ONLY; 9510=BELLOW FORAM SAMPLE GAP THE FAUNA IS VERY MIXED - OLDEST APPEARS TO BE GLOBIGERINA NEPENTHES; 9945=RETICULOFENESTRA BISECTA ASSEMBLAGE; 11371=OUT OF PLACE LATE MIocene NANNOS; 14820=DISCOASTER NEORECTUS; 15000=NANNOS INDICATE UNDIFFERENTIATED LATEST MIocene; 15510=MIXED FORAM ASSEMBLAGE WITH ONE GLOBIGERINOIDES PRIMORDIUS; 15630=GLOBOROTALIA INCREBESCENTS; 15765=CHIASMOLITHUS EXPANSUS; 15780=UPPER EOCENE SPHENOLITHUS RADIAN; 15810=GLOBOROTALIA ARAGONENSIS; 16050=RARE GLOBIGERINA COMPRESSA; 16051=PRINSIUS MARTINII; 16080=RARE GLOBIGERINA EUBIGIBINA; 16140=PRINSIUS AFRICANUS; 16155=EARLY TURONIAN-CENOMANIAN UNDIFFERENTIATED; 16230=LATE CENOMANIAN COROLLITHION KENNEDYI, RHAGODISCUS ASPER; 16320=LATE ALBIAN BRAARUDOSPHEARA AFRICANA; 16380=NANNOCONUS WASSALLI WITH ?NANNOCONUS BUCHERI; 16560=LATE APTIAN GLOBIGERINELLOIDES ALGERIANA; 16562=BARREMIAN NANNOCONUS KAMPTNERI; 16680=BARREMIAN CALCICALATHINA OBLONGATA; 16770=GLOBIGERINELLOIDES BLOWI (IN EARLY TO MIDDLE APTIAN); 17130=VALANGIAN MICRANTHOLITHUS SPEETONENSIS; 17430=EARLY BERRIASIAN POLYCOSTELLA BECKMANNI; 17551=LATE TITHONIAN CREPIDOLITHUS CRASSUS.</p>					
Measured Depth	Definite/Possible	Paleo Top	Definite/Possible	Eco Zone	
9210	DEF	AT CEMENT	POS	IN	4
9211	DEF	AT REWORKED MATERIAL	POS	IN	4
9375	DEF	AT PLEISTOCENE Pseudemiliania lacunosa "vr"/1.5 / 2	POS	IN	4
9420	DEF	AT REWORKED MATERIAL	POS	IN	4
9450	DEF	AT PLIOCENE Reticulofenestra pseudoumbilicus	POS	IN	4
9465	DEF	AT PLIOCENE Dictyococcites antarcticus	POS	IN	4
9510	DEF	IN INDICATOR FAUNA IN UPPER PLIOCENE-GLOBIG. NEPENTHES	DEF	AT	5
9540	DEF	AT PLIOCENE Discoaster quinqueramus	DEF	AT	5
9555	DEF	AT PLIOCENE Discoaster berggrenii	DEF	AT	5
9570	DEF	AT - - - -	DEF	IN	5
9630	DEF	AT PLIOCENE Discoaster loeblichii	DEF	IN	5

This report contains public paleo reports only for the time period stated



- Employing recent literature and published industry biostratigraphic charts, important regional (global) and local planktic and benthic foraminiferal markers have been added and/or revised.



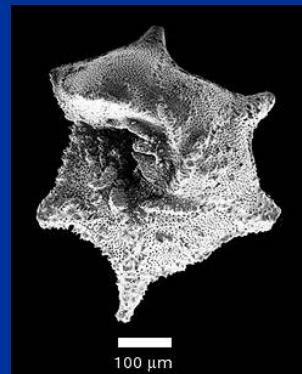
- Deepwater (slope and abyssal) biostratigraphic regional markers essential for correlation and mapping, and have been given equal importance to the continental shelf markers used in the old chart.



- Over 200 **coccolith** (calcareous nannofossil) markers are now on the chart. Previously only 20 nannofossils were identified stratigraphically. For the first time we have a refined picture of the Cenozoic and Mesozoic nannofossil stratigraphy to work with, quickly illustrated on the chart.



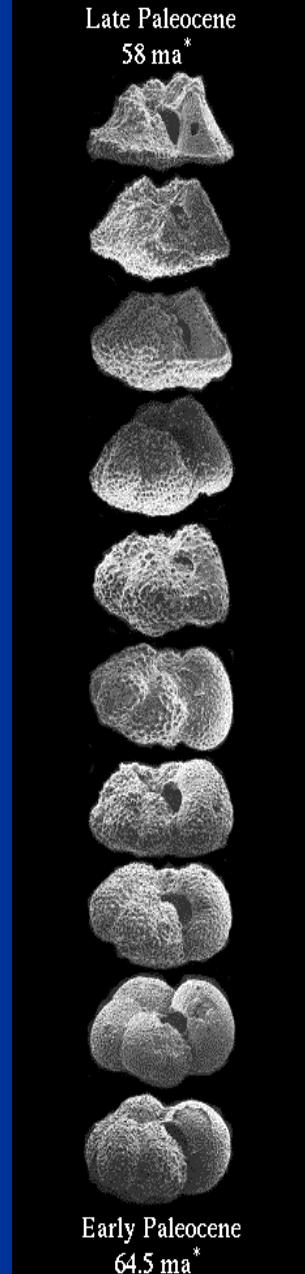
- Many **planktic forams** are now marked on the chart.



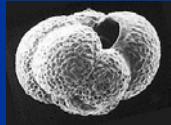
- The foram planktic and benthic biostratigraphy is **well-correlated** to the coccolith nanostratigraphy.

- The ages (**geochronology**) of the major global chronostratigraphic units (i.e., Lower Pleistocene, Middle Miocene) are on the chart for the entire section, from the Middle Jurassic through all of the Cenozoic.

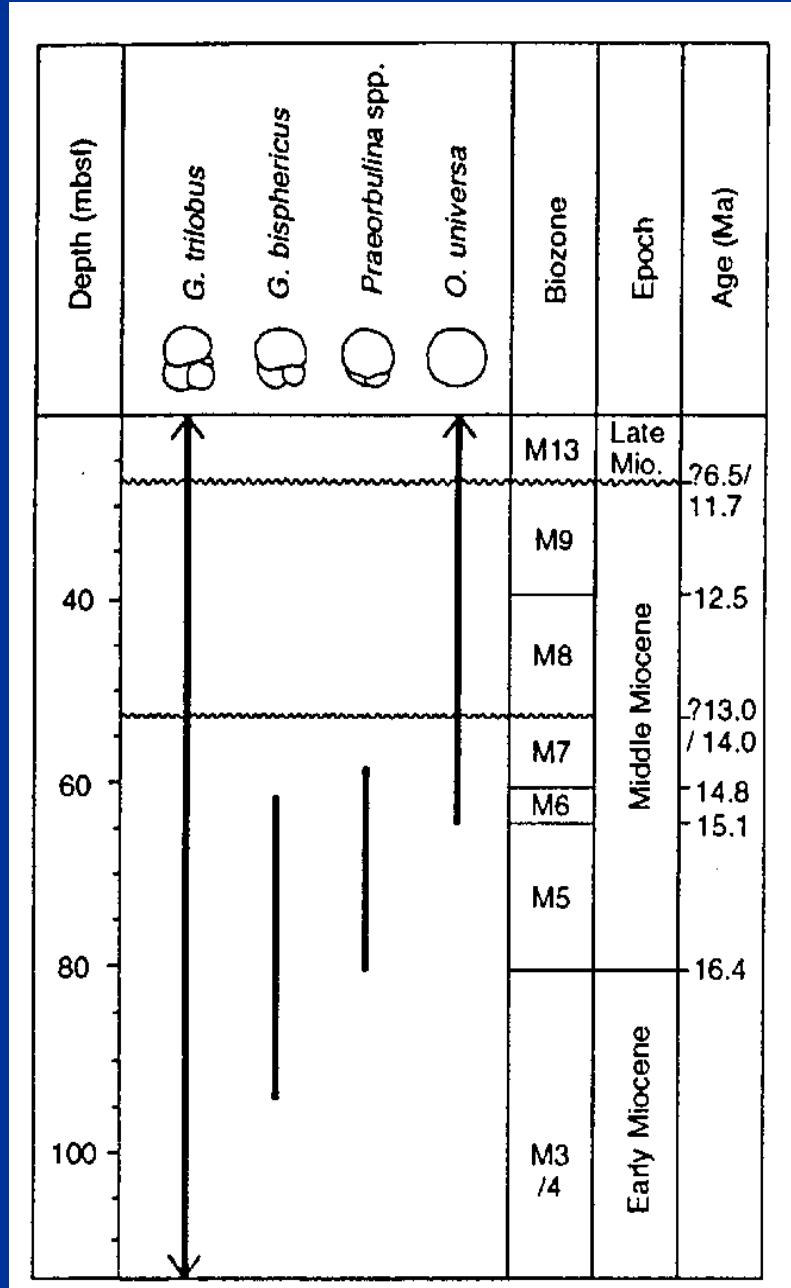
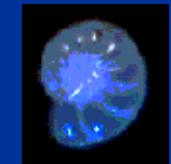
- The Middle Miocene-Upper Miocene, Miocene-Pliocene and Pliocene-Pleistocene boundaries conform to **global stratigraphic standards** as exemplified in recent publications by SEPM (see Picou et al, 1999 on the chart) and others referred to on the chart.



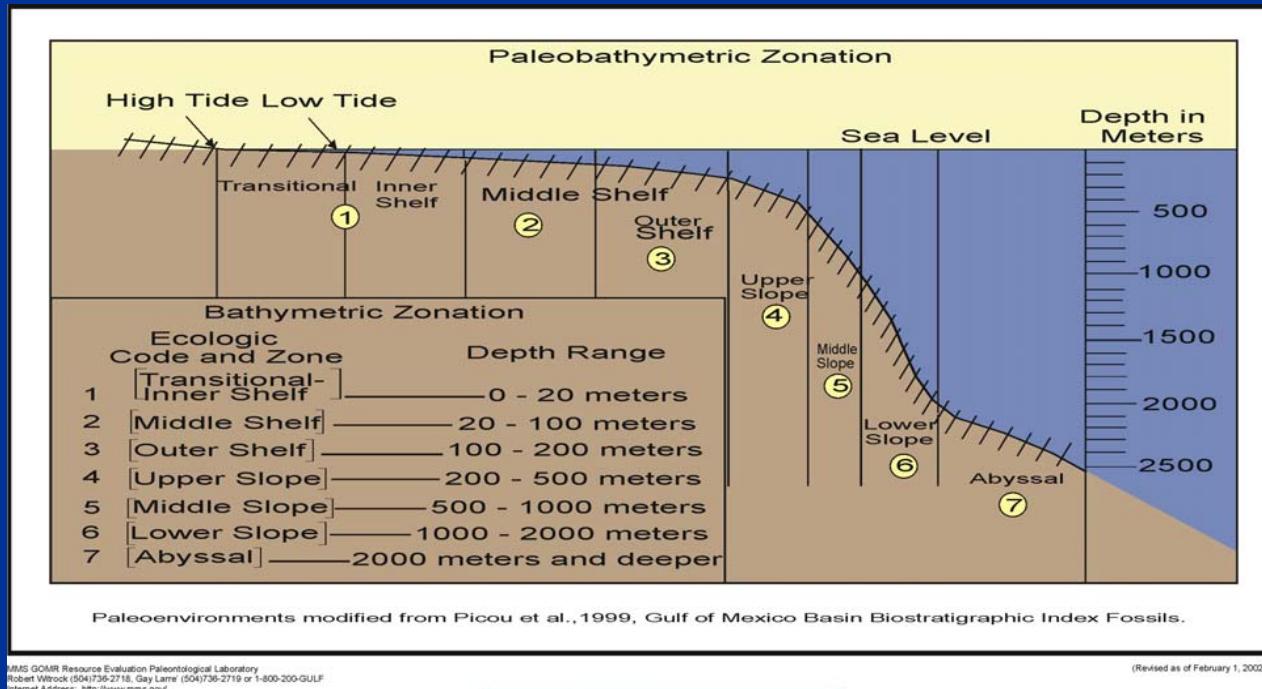
• When assessing hydrocarbon resources and publishing MMS reports, this new scheme will prove invaluable to all our **customers** within MMS and those in industry and academia.



• Our paleo-based reports will speak the same language as those in the public.



MMS Paleobathymetry



19



- An additional ecozone has been added to the Paleobathymetric Chart, a **Middle Slope (Middle Bathyal) zone**, acknowledging its use by most Gulf of Mexico paleo consulting companies since 1990.
- Furthermore, this addition is critical in differentiating facies changes and in identifying specific plays and depositional deepwater environments.

Public Paleontological Information



Contents:

Layout for ALL Public Paleo Reports.txt - layout for ASCII file

(gepaldmp.dmp and gepaldmp_new paleo.dmp - ALL Public Paleo Reports 01-Jan-1947 - 05-Mar-2002)

Layout for List of NEW Public Paleo.txt - layout of ASCII list file

(gepaldmp_new.dmp- list of NEW released reports 19-Sep-2001 - 05-Mar-2002)

gepaldmp.dmp - ASCII dump of all releasable paleo with lat/log & x/y coordinates
from 01-Jan-1947 - 05-Mar-2002

gepaldet.pdf - all releasable paleo reports in pdf format from 01-Jan-1947 - 05-Mar-2002

geplalla.pdf - list of all paleo NOT recommended for release in pdf format

geplallb.pdf - list of all paleo recommended for release in pdf format

biochart_new2002.pdf - DOI, MMS, Gulf of Mexico OCS Region, Biostratigraphic Chart

biochart_small2002.pdf - Biostratigraphic Chart reduced size

gepaldmp_newlist.dmp - a list, in ASCII format of **new** Paleo Reports releasable since
the previous release (additional Public Paleo from 19-Sep-2001 - 05-Mar-2002)

gepaldmp_newlist.pdf - a list, in pdf format, of **new** Paleo Reports releasable since
the previous release (additional Public Paleo from 19-Sep-2001 - 05-Mar-2002)

gepaldmp_new paleo.dmp - ASCII dump of new releasable paleo from 19-Sep-2001 - 05-Mar-2002

gepaldet_new reports.pdf - new releasable paleo reports in pdf format from
19-Sep-2001 - 05-Mar-2002

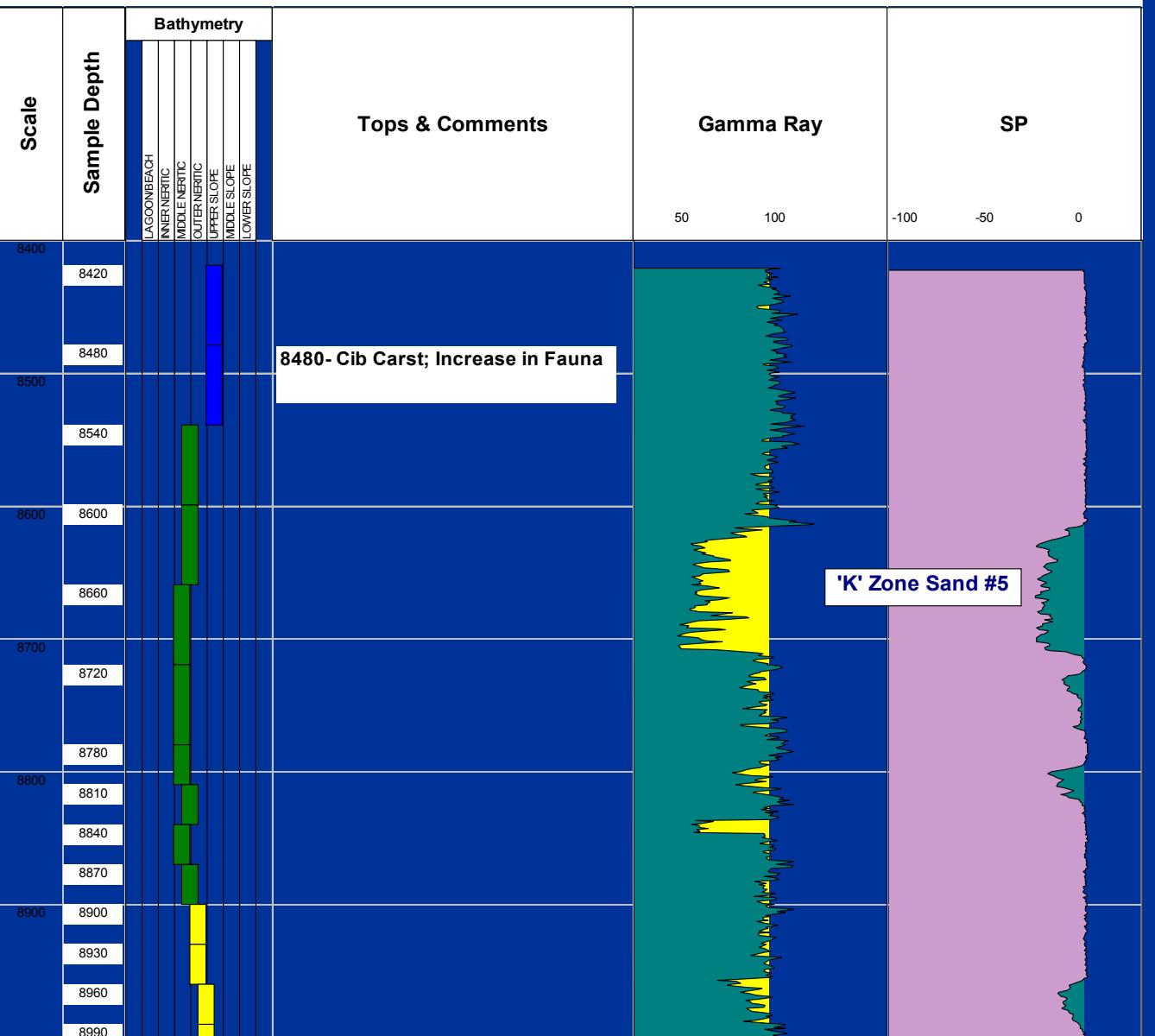
Getting Started: Select Notepad and open instruc.txt or select Adobe Acroread,
select Reader, select 16bit or 32bit, select Setup.exe and open instruc.pdf

System Requirements: 486 or higher IBM or compatible computer with
Windows 3.1, 95 or 98 and 8 MB of RAM.



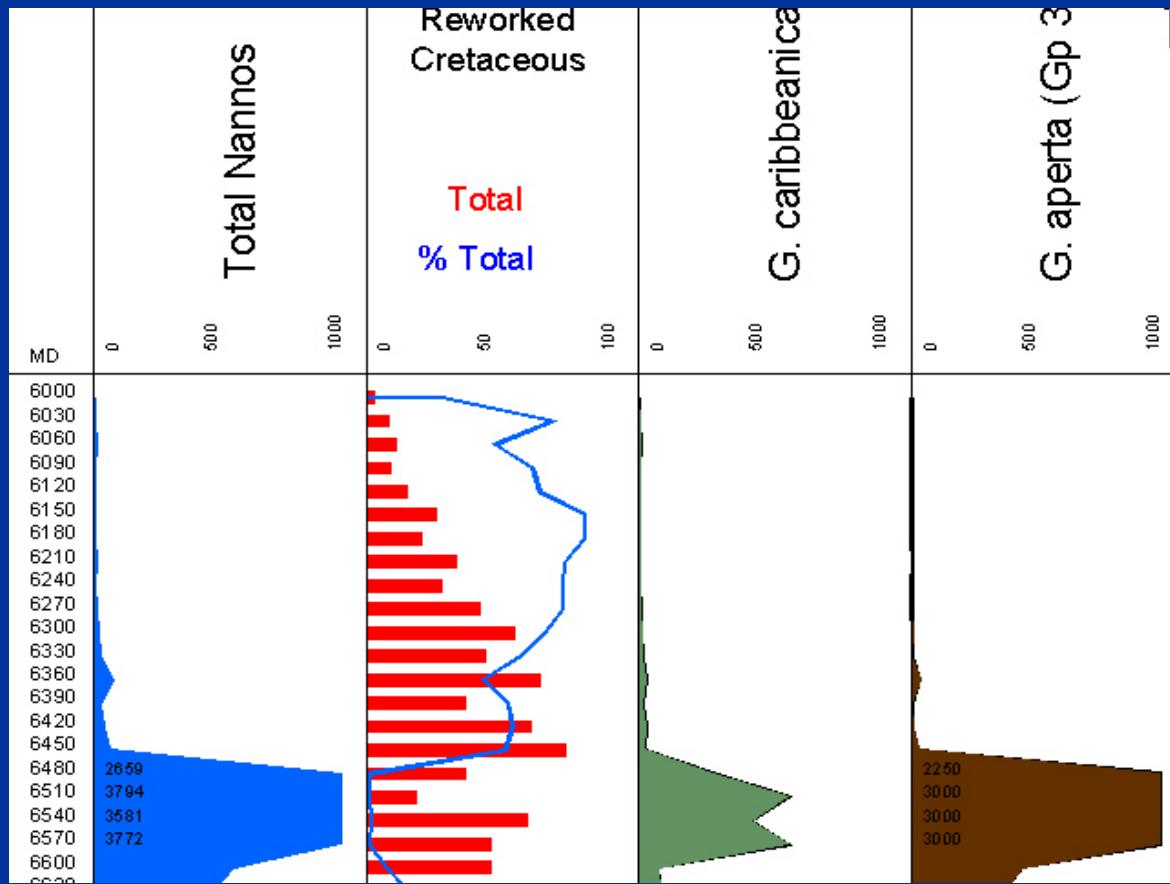
FOSSIL TYPE: FORAMINIFERA
 AREA: Mississippi Canyon
 BLOCK: 123
 WELL NUMBER: A-3
 OCS: x-1234

OPERATOR:
 PALEONTOLOGIST
 REQUESTED BY:
 PURPOSE:



*Paleobathymetric changes with measured sample depth, placed alongside the Upper Miocene benthic foraminiferal marker (top) **Cibicides carstensi** and gamma ray and SP curves, Mississippi Canyon area, Gulf of Mexico*

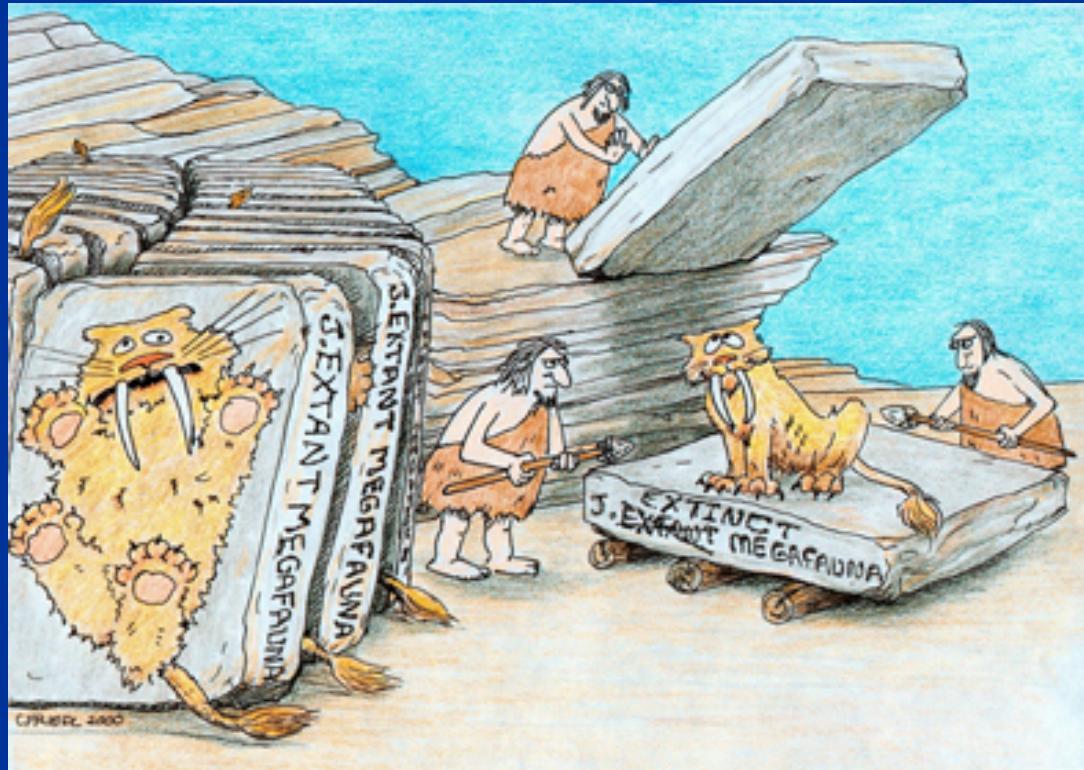
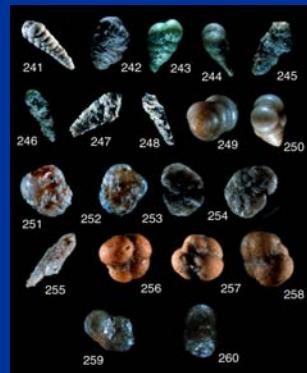
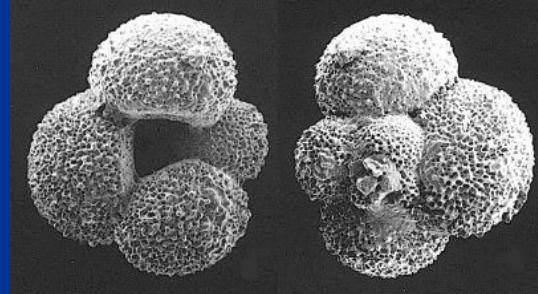
Nannofossil abundance data plotted against measured depth



Nannofossil occurrence data plotted against measured depth in a borehole,
Curves (percentage curve, abundance curve) can be superimposed to show
different aspects of the same data (modified from Bugware, Inc.).



Future investigations of extinction



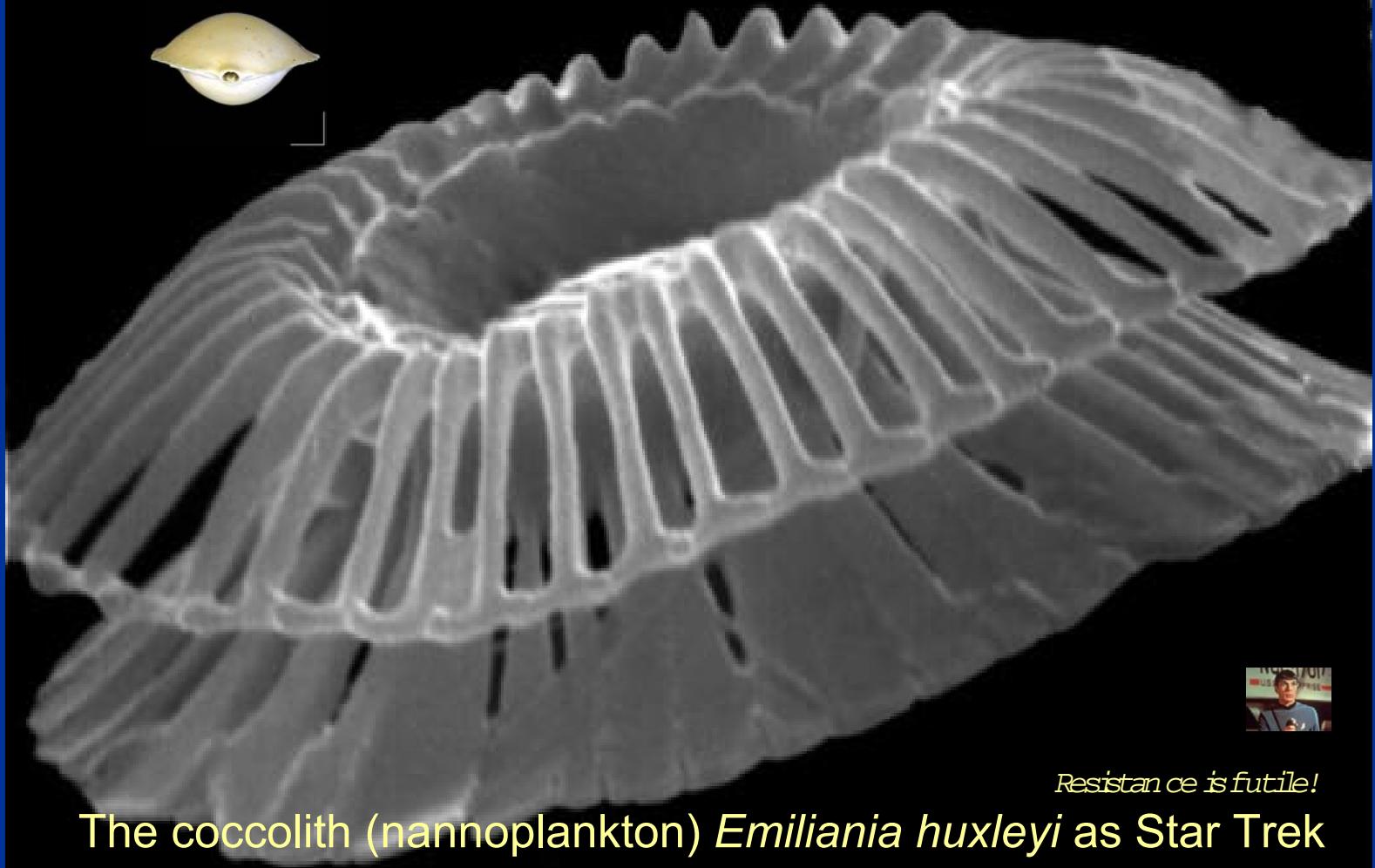
New research suggests that extinction of Late Quaternary large mammals may have been related to an early ICBN requirement recommending distribution of a reasonable number of syntypes of each newly described taxon.



The future 5-year mission.....



10



Resistance is futile!

The coccolith (nannoplankton) *Emiliania huxleyi* as Star Trek